

REMARKS

In this Amendment, Applicant has amended Claims 1 – 26 to specify various embodiments of the present invention and overcome the rejection. It is respectfully submitted that no new matter has been introduced by the amended claims. All claims are now present for examination and favorable reconsideration is respectfully requested in view of the preceding amendments and the following comments.

REJECTIONS UNDER 35 U.S.C. § 112 FIRST PARAPGRAPH:

Claim 1 has been rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

It is respectfully submitted that the rejection is incorrect. More specifically, the limitation “an extended ribbon” is disclosed on page 7, line 24 through page 8, line 10, especially page 7, line 24 – 29 of the originally filed specification and Figs. 3 – 4. These descriptions also support the terms and phrases in the currently amended Claim 1, such as “the first edge and second edge corresponding to two opposite edges of the plane of the ribbon, and the side chains of the consecutive -D-amino acid residues being alternatively above or below the plane of the ribbon”. In addition, the position of the side-chain is supported by the originally filed Figs 3 – 4 and the knowledge of a person of ordinary skill in the art regarding the structure of a beta strand.

Furthermore, a schematic drawing showing a part of the structure of the “ribbon” is enclosed for Examiner’s reference.

Therefore, the rejection under 35 U.S.C. § 112, first paragraph is incorrect. Accordingly, withdrawal of the rejections under 35 U.S.C. § 112, first paragraph, is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 112 SECOND PARAPGRAPH:

Claims 1 – 26, 41 and 45 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is respectfully submitted that the rejections have been overcome by the presently submitted amendments. Claim 1 has been amended to clearly define the embodiments of the present invention. In the amended Claim 1, the term “ribbon” has been used to describe the shape of the peptide backbone of the beta-strand formed by the beta-strand section of the peptide, which is supported by the specification as indicated above. It is clear that the NH and CO components of the amino acid residues lie along the first edge and second edge of the ribbon, and the first edge interacts with a target beta-strand. In addition, the side chains being above or below the plane of the ribbon. The term “a β -strand-forming section of peptide” has been replaced with “a β -strand-forming section” in Claims 1 – 26. It is respectfully submitted that the “ β -strand” in item d) of Claim 1 has antecedent basis in item c) of Claim 1 (“a β -strand” on line 1 of item c) of Claim 1). Furthermore, Claim 1 has been amended to specify that the 50% refers to the length of the peptide. Finally, Claims 6 and 23 have been amended to correct the informalities pointed out by the Examiner.

The patent law allows an inventor to be his own lexicographer. *Loctite Corp. v. Ultraseal Ltd.* 781 F.2d 861, 228 U.S.P.Q. 90 (Fed. Cir. 1985). Applicant respectfully submits that the amended claims clearly define the structure of the claimed peptide and sufficiently supported by the specification, drawing and the knowledge of the person of ordinary skill in the art.

Therefore, the rejection under 35 U.S.C. § 112, second paragraph, has been overcome. Accordingly, withdrawal of the rejections under 35 U.S.C. § 112, second paragraph, is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 103:

Claims 1, 4 – 26 and 41 have been rejected under 35 U.S.C. § 103 (a) as allegedly being obvious over Findeis, M.A. et al. (US Patent 6,610,658), hereinafter Findeis.

Applicant respectfully traverses the rejection and submits that the embodiment of the present invention as defined in amended claims are not obvious over Findeis. More specifically, the amended Claim 1 clearly defines the first edge, the second edge and their interaction and relationship with the target beta strand. These features are not disclosed or suggested by Findeis. It is clear that the “edge” is not N- or C-terminal region of compounds disclosed in Findeis as alleged. Applicant respectfully submits that it is incorrect to refer to the N-terminal region (Y-Xaa1-Xaa2) and the C-terminal region (Z-Xaa1'-Xaa2'-Xaa3'-) of the peptide in Formula III disclosed in Findeis as being equivalent to the first edge and second edge as defined in of the amended Claim 1. The edges of the extended ribbon formed by the backbone of the β -strand are not the terminals of peptide, as a person of ordinary skills in the art understands that the primary structure of a peptide is different from the secondary structure formed by a β -strand.

Findeis relates to modified β -amyloid modulators. It differs from the compounds of the present invention in that it modifies the compounds at (a) N-or C-termini, and/or (b) at the side chains of the peptide structure (col. 5, lines 43 – 45 and col. 14, lines 35 – 49). There is no discussion of modifying the $N\alpha$ -substituents in the peptide backbone of the β -strand such that the substituents lie along only one “edge” of the β -strand. A substitution at the N-terminus would not fall within the scope of the amended Claim 1 at least because:

- (a) it is not a substitution “within the peptide backbone of the β -strand”; and
- (b) it would not “lie along only the second edge” because the C-N bond attaching the terminal NH₂ group to the peptide can rotate. It is not a fixed conformation like the peptide backbone N-H components. The embodiment of the present invention as defined in the amended Claim 1 indicates that the H-atoms on $N\alpha$ -atoms within the peptide backbone are substituted (See part (d) of Claim 1). Only the $N\alpha$ -substitution fixes the conformation of the substituents and ensures that they align along a single edge of the peptide backbone of the β -strand.

Findeis states that the term “peptidomimetic” is intended to include “isosteres” which are further defined as “a chemical structure that can be substituted for a second chemical structure because the steric conformation of the first structure fits a binding site specific for the second structure.” (col. 17, lines 31 – 36) This clearly indicates to a person of ordinary skill in the art that, according to the teaching of Findeis, an N-alkyl substituted peptidomimetic has a steric conformation which fits the binding site of the naturally occurring chemical structure. This teaching is completely contradictory to the compounds of the present invention, which introduces N α -substituents for the sole purpose of altering the steric conformation of the unsubstituted structure, thus preventing further association with the target beta strand.

One of the novelty features of the present invention is not the use of N α -substituted residues anywhere in the peptide, but the use of the substituents attached specifically to the N α atoms of the peptide backbone of the beta-strand-forming section, such that they introduce steric hinderance along only one edge of the beta-strand-forming section. To the contrary, Findeis discloses substitution at any of the amino-terminus, carboxy-termus or side chains (col. 14, lines 35 – 49).

It is respectfully submitted that the mechanism behind how the compounds of the present invention work is completely different from that disclosed by Findeis. Findeis does not contain any teaching that substitution along the peptide backbone of the beta-strand-forming section can prevent association with a target beta-strand. Findeis clearly does not provide any motivation to modify itself to achieve the present invention.

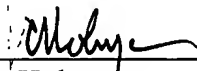
Therefore, the rejection under 35 U.S.C. §103 has been overcome. Accordingly, withdrawal of the rejections under 35 U.S.C. §103 is respectfully requested.

Having overcome all outstanding grounds of rejection, the application is now in condition for allowance, and prompt action toward that end is respectfully solicited.

Respectfully submitted,

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